KHARCHENKO, T. T.   PA 51T51

USSR/Medicine - Meningitis   Mar 1948
    Medicine - Sulfanilimide and Sulfanilamide Derivatives

"Prophylactic Application of Sulfidine in Epidemic Cerebrospinal Meningitis," V. I. Shkorbatov, T. T. Kharchenko, Epidemiol Sec, Far Eastern Inst Experimental Med, Khabarovsk, 1 p

"Sovets Medits" No 3

Presents collection of data on use of sulfidine against epidemic cerebrospinal meningitis to show that this preparation is very effective prophylactic substance.

PA 51T51

POTAPCHUK, B.; KHARCHENKO, V.

"It is necessary to raise the standards for dried vegetables."
Sov.torg. no.8:45 Ag '57.   (MLRA 10:8)
                    (Vegetables, Dried)

AUTHOR: Kharchenko, V.   27-10-7/21

TITLE: High Award (Vysokaya nagrada)

PERIODICAL: Professdonal'no - Tekhnicheskoye Obrazovaniye, 1957, # 10,
            p 19-20 (USSR)

ABSTRACT: S.A. Makarchuk, team-leader in Mine # 10 imeni Volodarskiy in
            the Donbass, was awarded the title of Hero of Socialistic
            Labor and granted the order of Lenin and the gold medal "Sickle
            and Hammer". The article describes his career in the mining
            profession after he graduated from the FZO School # 182 which
            is now the Industrial Mining School # 72. Attached to the
            article are 2 photos of master-craftsman T.M. Turyshev, in-
            structor of the Technical School # 13 at Krasnoufimsk
            (Krasnoufimskoye tekhnicheskoye uchilishche # 13), and of
            Deputy-Director V. Vatlin of the Trade School # 1 at Gor'kiy
            (Remeslennoye uchilishche # 1, Gor'kiy).
            There are 4 figures.

AVAILABLE: Library of Congress

Card 1/1

"Druzhba," Saturday lunchroom for students. Obshchestv.pit.
no.1:15 Ja '60.   (MIRA 13:5)

1. Sverdlovskiy mezhrayonnyy trest stolovykh.
     (Leningrad--School lunchrooms, Cafeterias, etc.)

KHARCHENKO, V. A.

Fodder root crops 11. izd., ispr. i dop. Moskva, Gos. izd-vo selkhoz
lit-ry, 1951. 279 p.

KHARCHENKO, V. A.

Feeding and Feeding Stuffs

"Green Fodder Plan," K. A. Alekseyev, and "GReen Fodder Plan," L. V. Maksimenko. Reviewed by V. A. Kharchenko., Korm. baza, 3, no. 2, 1952

Monthly List of Russian Accessions, Library of Congress, April 1952. UNCLASSIFIED.

KHARCHENKO, V.A.

Effect of carbonate formation in loess on its interaction with
bitumen. Izv. AN Kazakh. SSR Ser.gor.dela, met. i stroimat. no.2:
107-115 '54.   (MLRA 9:6)
        (Loess) (Bitumen)

KHARCHENKO, V.A.; YEGOROVA, L.G.: AGAPOV, N.F.

Composition and properties of native bitumen from Emba "kirs."
Izv.AN Kazakh.SSR.Ser.gor.dela, met., stroi. i strimat. no.10:74-
80 '56.   (MIRA 10:1)
            (Emba region--Bitumen)

K

MINAS, Aleksey Illarionovich, kand.tekhn.nauk; KHARCHENKO, V.A., kand.tekhn. nauk, otvetstvennyy redaktor; NINBURG, B.Ya., red.; KOROKINA, Z.P., tekhn.red.

[Charts for determining the composition of ordinary concrete] Grafiki dlia opredeleniia sostava obuknovennogo betona. Izd. 2-oe, chastichno perer. i dop. Alma-Ata, Izd-vo Akad.nauk Kazakhskoi SSR, 1957. 56 p.
(Concrete)   (MIRA 11:2)

KHARCHENKO, V.A.; IYERUSALIMSKAYA, M.F.

Northern Kazakhstan soils as a road building material. Izv. AN
Kazakh. SSR. Ser. gor. dela, met., stroi. i stroimat. no.3:114-
136 '57. (MIRA 10:11)
(Kazakhstan--Solonets soils) (Road construction)

influence of charge composition and iron

AUTHORS: Braynin I.Ye., Budinshteyn, R.I., Kharchenko, V.A.

TITLE: How the Mechanical Properties of Cast Iron Affect Mold Life
(Mekhanichskiye svoystva chuguna i stoykost' izlozhnits)

PERIODICAL: Tr. Donetsk. industr. in-ta, 1957, Vol 19, pp 19-36

ABSTRACT: Results of studies by the Donets Industrial Institute as to mold (M) life relative to the mechanical properties of cast iron are presented. The strength (S) and ductility of specimens from the inside surface of the M are higher than from the outside. The mechanical properties of specimens taken directly from the body of the M are higher than from samples cast in M. In the case of molds that had lasted through only a small number of heats (47), the highest S is shown by specimens from the inside surface, while specimens from the middle of the wall showed the highest in the case of M that had lasted for a large number of heats (102). S and M hardness diminish with use, whereas ductility, on the other hand, increases. The microstructure of a M that had endured 102 heats showed oxides and cracks to be present at 5-7 mm from the inside surface,

Card 1/2

How the Mechanical Properties of Cast Iron Affect Mold Life

and decomposition of the pearlite cementite throughout the thickness of the M wall, halfway up the wall. It is concluded that S declines as the graphitization constants rise (owing to increase in S_1) and with use, while ductility rises. When M are cast in semipermanent shapes it is recommended that the latter be preheated to 250-300°. This makes for a larger primary grain and more favorable graphite shape, and also increases the mechanical properties and service life of the M.

N.Z.

Card 2/2

·18(7)
AUTHORS: Braynin, I. Ye, Kharchenko, V. A.,   SOV/163-58-4-40/47
              Kondrashov, A. I.

TITLE: Influence of Homogenization on the Position of the Critical
              Points in Chrome-Nickel-Molybdenum Steel (Vliyaniye
              gomogenizatsii na polozheniye kriticheskikh tochek v
              khromonikel'molibdenovoy stali)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya, 1958, Nr 4,
              pp 229-231   (USSR)

ABSTRACT: The chrome-nickel-molybdenum steel 42KhN3M was investigated
              here. It shows a special inclination to the segregation of
              dendrites and has the following chemical composition :
              0.42% C, 0.50% Mn, 0.30% Si, 0.63% Cr, 2.90% Ni, 0.30% Mo,
              0.022% P, 0.018% S. The critical points were determined on the
              differential dilatometer with optical recording. On account of
              the investigation, it was ascertained that a previous
              homogenization of the chrome-nickel-molybdenum steel has an
              influence on the position of the critical points as follows:
              1) The points A_{c_1} and A_{c_3} rise a little. 2) In cooling at a
              speed below the critical speed, the point of the beginning

Card 1/2

Influence of Homogenization on the Position of the   SOV/163-58-4-40/47
Critical Points in Chrome-Nickel-Molybdenum Steel

decomposition of beynite falls, and the point of the beginning
conversion of martensite rises. 3) In cooling at a speed equal
to or higher than the critical speed, the initial point of
martensite conversion M_c falls at the expense of the

concentration increase in carbon and the alloying elements in
the dendrite axes. There are 1 figure and 3 references, 2 of
which are Soviet.

ASSOCIATION: Donetskiy industrial'nyy institut (Donets Industrial Institute)

SUBMITTED: October 26, 1957

Card 2/2

SOV/24-58-5-9/31

AUTHORS: Braynin, I. Ye., Kondrashov, A. I. and Kharchenko, V.A. (Stalino)

TITLE: The Effect of Homogenisation on the Stability of Super-cooled Austenite in Chromo-Nickel-Molybdenum Steel (Vliyaniye gomogenizatsii na ustoychivost' pereokhlazh-dennogo austenita v khromonikel'molibdenovoy stali)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 5, pp 54-58 (USSR)

ABSTRACT: The effect of homogenising treatment (diffusion annealing) on the kinetics of the isothermal transformation of austenite was investigated by the magnetometric method on two types of steel of the following composition:

Steel	Mark	C	Mn	Si	Cr	Ni	Mo	P	S
A	35KhN3M	0.34	0.50	0.32	0.97	2.98	0.33	0.030	0.027
B	35KhNM	0.33	0.47	0.25	0.95	1.54	0.36	0.026	0.025

The critical points of the two steels determined by dilatometric measurements are given below:

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The Effect of Homogenisation on the Stability of Super-cooled
Austenite in Chromo-Nickel-Molybdenum Steel

Steel	On heating		On cooling	
	Ac_1	Ac_3	Region of Bainite Transformation	Start of the martensitic transformation M
A	690°C	770°C	470-270°C	310°C
B	730°C	800°C	480-320°C	340°C

The samples used for the preparation of the experimental
test pieces were cut out from 6-ton forgings of 600 mm
diameter, at a distance of a half of the radius from the
surface. The homogenising treatment consisted of holding
for 6 hours at 1200 or 1255°C in the case of steel "A",
and 3 or 6 hours at 1255°C in the case of steel "B".
All test pieces were protected from oxidation by a layer
of electrodeposited chromium. The isothermal transforma-
tion of the austenite was studied at 300°C in steel "A",
and at 300 and 650°C in steel "B".   The results,
Card 2/4 tabulated and graphed in the form of percentage of

SOV/24-58-5-9/31

The Effect of Homogenisation on the Stability of Super-cooled Austenite in Chromo-Nickel-Molybdenum Steel

decomposed austenite-versus-time curves, show that the time required for complete decomposition of supercooled austenite and the incubation period in homogenised steel "A" are respectively 2-3 and 100-150 times shorter than in the untreated material. In the case of steel "B" treated isothermally at $650°C$, the preliminary homogenising treatment shortened the time required for complete decomposition by a factor of 1.5, and the incubation period by a factor of 5. The results of the magnetometric measurements were confirmed by microscopic examination which revealed that after identical isothermal treatment the proportion of retained austenite was considerably higher in specimens subjected to a preliminary homogenising treatment. The fact that this treatment which should normally result in an increase of the incubating period had in fact an opposite effect is attributed to the formation of ultramicroscopic domains saturated with sulphur and denuded of carbon. Such domains were detected micro-

Card 3/4   scopically in alloy steels heated to $1250°C$ and

SOV/24-58-5-9/31

The Effect of Homogenisation on the Stability of Super-cooled
Austenite in Chromo-Nickel-Molybdenum Steel

> higher temperatures.
> There are 6 figures, 2 tables and 10 references,
> 7 of which are Soviet, 3 English.

ASSOCIATION: Donetskiy industrial'nyy institut (Donets Industrial
Institute) and NKMZ

SUBMITTED: July 3, 1957

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129-58-7-10/17

AUTHORS: Braynin, I. Ye, Doctor of Technical Sciences Professor, Kondrashov, A. I. and Kharchenko, V. A., Engineers

TITLE: Improvement of the Technology of Heat Treatment of Cold Rolling Rolls Made of the Steel 9KhF. (Usovershenstvovaniye tekhnologii termicheskoy obrabotki valkov kholodnoy prokatki iz stali 9KhF)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 7, pp 43-46 (USSR)

ABSTRACT: From 1949 onwards the authors' parent factory started producing the rims of rolls for cold rolling from 9KhF steel produced in an open hearth furnace using the ordinary method of "precipitation deoxidation". This steel is less inclined to form cracks and floculi than the earlier used eutectoidal steel 65KhMF. In this paper the results are given of investigations of this steel. The rims were produced by forging from ingots weighing 27 tons. The temperature at the beginning of forging was 1150 to 1180°C, the temperature at the end of forging was 800 to 900°C. The forgings had the following final dimensions: outside diameter 1300 mm, inside diameter 700 mm, length 2050 mm. One batch was forged in a single operation a

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129-58-7-10/17

Improvement of the Technology of Heat Treatment of Cold Rolling
Rolls Made of the Steel 9KhF

second batch was forged in two operations with an
intermediate annealing which is described in great detail.
The following conclusions are arrived at:
1) An appreciable grain growth and over-heating of the
steel 9KhF takes place above 950°C when the secondary
carbides dissolve in the austenite.
2) An increase of the austenization temperature from
830 to 960°C improves the stability of the super-cooled
austenite, increases the temperature of its minimum
stability in the pearlitic range and reduces its
martensitic point.
3) Forging of backing roll rims for cold rolling rolls
brings about a reduction in the size of the primary
grain and an improvement in the macro-structure of the
metal.
4) The two-stage regime of isothermal annealing developed
by the authors and described in the paper obviates the
necessity of normalisation annealing for eliminating the
floculi of the carbide grid and ensures a satisfactory
Card 2/3   hardness and good machineability.

129-58-7-10/17

Improvement of the Technology of Heat Treatment of Cold Rolling
Rolls Made of the Steel 9KhF

5) The described regimes of hardening (through water in
oil) and tempering ensures obtaining the necessary
hardness at the surface of the rolls with a minimum of
the residual internal stresses.
There are 5 figures.

ASSOCIATIONS: Donetskiy industrial'nyy institut (Donets Industrial
Institute) and Novo-Kramatorskiy Zaved (Donbass)
(Novo-Kramatorskiy Works, Donbass)

Card 3/3

BRAYNIN, I.Ye., prof.; KHARCHENKO, V.A., inzh.; KONDRASHOV, A.I.

Experimental investigation of stress distribution in the cross section of a blank deformed by bending in association with flake formation. Izv. vys. ucheb. zav.; chern. met. no.12:73-77 D '58.

(MIRA 12:3)

1.Donetskiy industrial'nyy institut i Novo-Kramatorskiy zavod tyazhelogo mashinostroyeniya.
                (Deformations (Mechanics))
                (Steel--Metallography)

133-58-4-22/40

AUTHORS: Braynin, I. Ye., Professor, Kharchenko, V. A. and
Kondrashov, A. I., Engineers

TITLE: The Influence of Internal Stresses on the Formation of
Flakes (Vliyaniye vnutrennikh napryazheniy na
obrazovaniye flokenov)

PERIODICAL: Stal', 1958, Nr 4, pp 342-348 (USSR)

ABSTRACT: The investigation was carried out in order to determine
the influence of additional stresses on the formation of
flakes under real production conditions without an
artificial saturation of metal with hydrogen. Specimens
from forgings of 40KhN steel of the following composition %:
C 0.39; Mn 0.62; Si 0.22; Cr 0.65; Ni 1.2 were taken for
the investigation. Steel 4KhN possesses a considerable
hardenability on cooling in water and at the same time
its supercooled austenite is comparatively little stable
in the upper subcritical zone and ro cooling in hot ash or
scale even in small forgings, with transverse dimensions
70-80 mm, is completely transformed above 600°C. Moreover,
this steel is flake sensitive. Semis were forged from
3 ton ingots which after stripping were slowly cooled
during 6 hours in a pit, then heated in a furnace to

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133-58-4-22/40

The Influence of Internal Stresses on the Formation of Flakes

forging temperature and forged in a press to a cross
section of 150 x 150 in the temperature range 1180-960°C.
Specimens were cut out from the lower part of the ingot
after crop bottom. Altogether eight specimens were
prepared which were variously treated (a description is
given) in order to obtain various kinds of stresses
(mechanical, thermal, structural). After three days all
specimens were tested for the presence of flakes by the
following methods: a) ultrasonic test in order to detect
discontinuities and to determine their depth and direction;
b) cutting out templets and making sulphur prints;
c) control of the templets for flakes with magnetic
defectoscope and by deep etching with ammonia persulphate
and nitric acid; d) study of fracture and micro-structure
in places where flakes were found and hardness across
the cross-section of specimens. The results of the control
on the presence of flakes are assembled in Fig.2.
Conclusions: The results obtained confirmed the conclusions
of the investigators (Refs.2 and 8) who considered the
formation of flakes results from the joint action of
hydrogen and tensile stresses (mechanical, thermal,
Card 2/3 structural). Artificially induced tensile stresses

133-58-4-22/40

The Influence of Internal Stresses on the Formation of Flakes

(mechanical, thermal, structural) can cause the formation of flakes outside the central zone in which on cooling in air flakes are not formed. In the external part of semis, where the hydrogen content is insignificant, flakes are not formed even under the influence of comparatively large tensile stresses. Compressing stresses even insignificant ones, can prevent the formation of flakes in the centre, i.e. in the zone of maximum hydrogen content. Large forgings should be slowly cooled in order to prevent the formation of flakes as a result of the appearance of thermal tensile stresses.
There are 9 figures and 13 references, 7 of which are Soviet, 2 English, 2 German, 1 French, 1 Japanese.

ASSOCIATIONS: Donetskiy industrial'nyy institut (Donets Industrial Institute) and Novo-Kramatorskiy metallurgicheskiy zavod (New Kramatorsk Metallurgical Works)

1. Steel--Surface properties--Stress effects

Card 3/3

AUTHORS: Braynin, I.Ye.;   Kharchenko, V.A.

TITLE: Distribution of Stresses in Billets Deformed by Bending and Their
Effect on the Formation of Flakes

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, 1960,
No. 10, pp. 139 - 142

TEXT: The effect of stresses on the formation of flakes in 40XH (40KhN)
steel (with hydrogen content of 5 cm^3/100 g) had been studied previously (Refer-
ences 1 and 2) (Ref. 1 - Braynin, Kharchenko and Kondrashov, "Stal'", 1958, No.
4; Ref. 2 - same authors, "Izvestiya vysshikh uchebnykh zavedeniy. Chernaya
metallurgiya", 1958, No. 12). It had been stated that flakes always formed along
the fibers and parallel to the axis in forgings bent 12 and 22°. Flakes were ab-
sent in the inner spread zone and the outer stretched zone of the cross section
area, and this was explained by the impossibility of hydrogen accumulation in
these zones adjacent to the ambient medium where the partial pressure of hydrogen
is practically zero. The absence of transverse flakes in billets bent 22° ap-
peared strange. To find an explanation, the deformation of fibers has been ana-

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S/148/60/000/010/014/018
A161/A030

Distribution of Stresses in Billets Deformed by Bending and Their Effect on the
Formation of Flakes

lyzed graphically (Fig. 1), and the stresses formed in bending were evaluated by
mechanical tests of specimens. The conclusion is made that no crosswise flakes
formed under the effect of longitudinal tension stress due to the higher plastic-
ity of the metal along the fibers than across the fibers, and to the insufficient
hydrogen content in the billet. As had been revealed in Reference 4 (S.T. Kono-
beyevskiy, "Zhurnal eksperimental'noy i teoreticheskoy fiziki", No. 13, 1943, p.
200), residual tension stresses have a mechanical effect as well as a stimulating
effect on the diffusion, and this causes additional accumulation of molecular
hydrogen in dislocations and other grid defects, and of atomic hydrogen in elas-
tically stretched cells at the defects. The recombination of atoms and the forma-
tion of hydrogen molecules cause high inner stresses and brittleness, and the
formation and propagation of cracks. With a very high hydrogen content in steel
artificially saturated with it at high temperatures and pressure, flakes may form
under the effect of molecular hydrogen alone, without additional stresses. There
are 2 figures and 4 Soviet references.

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S/148/60/000/010/014/018
A161/A030

Distribution of Stresses in·Billets Deformed by Bending and Their Effect on the
Formation of Flakes

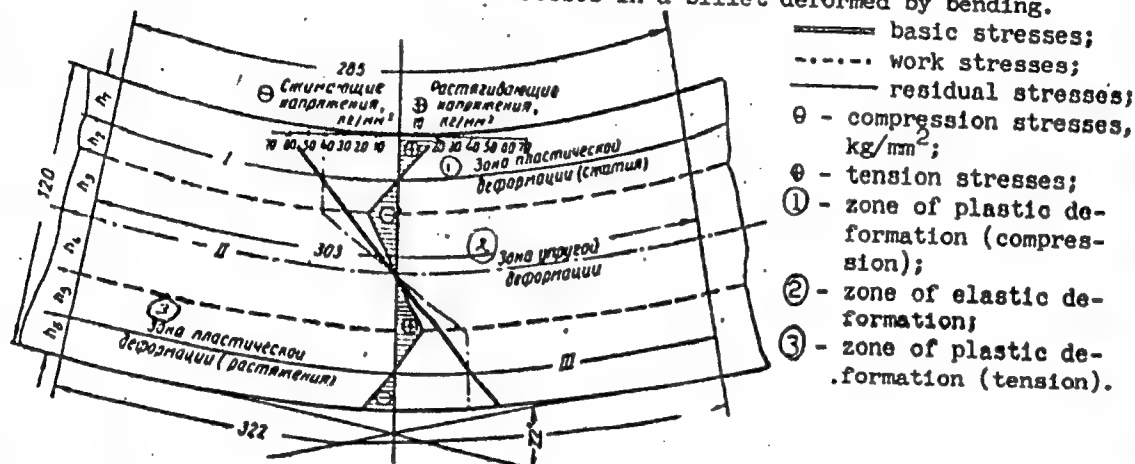ASSOCIATION: Donetskiy politekhnicheskiy institut (The Donets Polytechnical In-
stitute)

SUBMITTED: November 20, 1959

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Distribution of Stresses in Billets Deformed by Bending and Their Effect on the
Formation of Flakes

Figure 1: Epures of longitudinal stresses in a billet deformed by bending.

===== basic stresses;
·-·-·· work stresses;
——— residual stresses;
θ - compression stresses, kg/mm^2;
$\oplus$ - tension stresses;
① - zone of plastic deformation (compression);
② - zone of elastic deformation;
③ - zone of plastic deformation (tension).

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PHASE I BOOK EXPLOITATION   SOV/5511

Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Kiyevskoye oblastnoye pravleniye.

Metallovedeniye i termicheskaya obrabotka (Physical Metallurgy and Heat Treatment of Metals) Moscow, Mashgiz, 1961. 359 p. Errata slip inserted. 5,000 copies printed.

Sponsoring Agency: Gosudarstvennyy nauchno-tekhnicheskiy komitet Soveta Ministrov UkrSSR. Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Kiyevskoye oblastnoye pravleniye.

Editorial Board: M. P. Braun, Doctor of Technical Sciences, I. Ya. Dekhtyar, Doctor of Technical Sciences, B. A. Draygor, Doctor of Technical Sciences, I. S. Karenichoyre, Engineer, Ye. A. Markovskiy, Candidate of Technical Sciences, V. G. Permyakov, Doctor of Technical Sciences, and A. V. Chernovol, Candidate of Technical Sciences; Ed.: M. S. Soroka; Tech. Ed.: M. S. Gornostaypol'skaya; Chief Ed., Mashgiz (Southern Dept.): V. K. Serdyuk, Engineer.

Card 1/10

PURPOSE: This collection of articles is intended for scientific workers and technical personnel of research institutes, plants, and schools of higher technical education.

COVERAGE: The collection contains papers presented at a convention held in Kiyev on problems of physical metallurgy and methods of the heat treatment of metals applied in the machine industry. Phase transformations in metals and alloys are discussed, and results of investigations conducted to ascertain the effect of heat treatment on the quality of metal are analyzed. The possibility of obtaining metals with given mechanical properties is discussed, as are problems of steel brittleness. The collection includes papers dealing with kinetics of transformation, heat treatment, and properties of cast iron. No personalities are mentioned. Articles are accompanied by references, mostly Soviet.

TABLE OF CONTENTS:

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BRAYNIN, I.Ye.; BUDINSHTEYN, R.I., Prinimali uchastiye: TURSUNOV, A.V.;
    KHARCHENKO, V.A.; KHOKHRYAKOV, B.D.; SEMKIN, A.T.; FILATOV, N.G.;
    KAREVA, A.G.

    Industrial experimentation in patenting rope wire in two baths.
    Izv.vys.ucheb.zav.; chern.met. 4 no.6:139-144 '61.   (MIRA 14:6)

    1. Donetskiy politekhnicheskiy institut.
         (Annealing of metals)   (Wire drawing)

AUTHORS: Braynin, I. Ye., Kharchenko, V. A., Kondrashov, A. I.

TITLE   The effect of homogenization on the mechanical characteristics and flake sensitivity of chrome-nickel-molybdenum steel

TEXT: An investigation was carried out as to the effect of homogenization upon the mechanical characteristics (6_b, 6_s, δ, ψ, a_k), H_B, and the microhardness of specimens cut out of various zones of forgings of steel 42 ХНЗМ (42KhNZM) (6 ton ingot) and 34 ХНЗМ (34KhNZM) (15.9 ton ingot), and also upon the flaking sensitivity of these steels. It was established that the homogenization of specimens of steel 34KhNZM cut out of the outside zone at 1,150°C for 10 hours raises the δ, ψ, and the a_k. Homogenization of large forgings at 1,180-1,200°C for 6 hours has no noticeable effect upon the lowering of flaking sensitivity and the raising of δ, ψ, and a_k of transversal specimens. There are 33 references.

[Abstracter's note: Complete translation]

T. Fedorova

Card 1/1

AUTHORS: Braynin, I.Ye., Kharchenko, V.A. and
Brusilovskiy, B.A. (Donetsk)

TITLE: The effect of H_2 on the lattice parameter of α-Fe

TEXT: The effect of H_2 is studied by observing the
displacement of the (211) X-ray reflection in the back
reflection region during the electrolysis of a 0.5 mm thick
sheet of 0.06% C mild steel in dil. HNO_3. The lattice
parameter was found to increase from 2.8673 ± 0.0001 Å to
2.8687 ± 0.0001 Å after an electrolysis of 24 hours, indicating
that H_2 is taken into solution in the Fe lattice. It is
pointed out that the main factors in such determinations are:
to retain the H_2 in the Fe lattice before the parameter is

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/8.7500

AUTHORS: Braynin, I. Ye., Kondrashov, A..I., Kharchenko, V. A.

TITLE: The basic characteristics of 9 ХФ (9KhF) steel

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 4, 1962, 14, abstract 4I91
             ("Tr. Donetsk. industr. in-ta", no. 32, 1958, 169 - 175)

TEXT: On samples cut out from forged 9KhF steel assays selected from
1.25-ton ingots, the following characteristics were determined: temperature Ac_1,
microstructure and the kind of fracture of hardened samples, the size of austenite
grain, hardenability and the kinetics of isothermic austenite decomposition,
hardness and a_k as a function of the tempering temperature after hardening, ten-
dency to temper brittleness. By means of finishing forging at temperatures from
900 to 700°C, cooling at different V_{cool} and additional normalizing, the ways of
preventing the appearance of the carbide skeleton in microstructure were looked
for. It has been established that the overheating of 9KhF steel begins from
hardening temperature of $> 950°C$ in connection with the solution of secondary
carbides. An increase of austenizing temperature from 830 to 860°C raises the

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The basic characteristics of 9ХФ (9KhF) steel

S/137/62/000/004/087/201
A052/A101

stability of overcooled austenite, increases the temperature of its minimum stability in the subcritical interval, and reduces the M_H temperature. 9KhF steel has no tendency to temper brittleness at 300 - 450°C. The carbide skeleton in the central zone of forgings could be eliminated only by the application of normalizing at 950 - 960°C.

L. Frumer

[Abstracter's note: Complete translation]

Card 2/2

/12.2300

AUTHORS: Braynin, I. Ye., Kharchenko, V. A.

TITLE: The part of hydrogen and stresses in flake formation

TEXT: It is supposed that at an H content in steel < 1 ml/100 g, flakes
are not being formed. According to the nature of H_2 liberation from them after
solidification and holding at room temperature, the steels, as to flake sensi-
tivity, are divided into the following 3 groups: 1) in Fe, soft carbon steel
and steel with high Nb content, higher rates of diffusion and H_2 liberation
are observed; at slow cooling, H_2 is easily liberated from these metals at
relatively high temperatures, without causing considerable stresses; 2) high-
alloyed steels of the perlite and perlite-martensite class show lesser H_2 libera-
tion rates in solid state, and high flake sensitivity; 3) in high-alloy steels
(ferrite, austenite and carbide type high-speed grades), H_2 is not liberated from
the solid metal; this is explained by the stability of the solution oversaturated
with H_2. These steels are not prone to flake formation. Soft carbon steels are

Card 1/2

The part of hydrogen and stresses in flake ...

less flake sensitive not only because of a higher H_2 liberation rate as a result
of higher temperatures of austenite to ferrite transformation, but also as a
result of a lesser H content, due to a higher O content when the steel is teemed
from the furnace. Moreover, the lesser flake sensitivity of soft carbon steels
is caused by their higher viscosity and ductility as compared with medium and
high-carbon steels. The authors mention a discussion on the mechanism of flake
formation. Summing up the results of this discussion, the authors draw the
following conclusions: 1) Flakes in steel are formed during the simultaneous
effect of molecular H_2 in the "slits" of mosaic structure domains over the
accumulation spots of dislocation groups, and elastic tensile stresses developed
at the "slit" tops; as a result, local concentration with hydrogen takes place
by means of ascending diffusion with subsequent embrittlement of the metal
resulting from the rearrangement of H atoms into molecules; 2) at a conventio-
nal H content in the steel (5 - 10 ml/100 g) the basic part of additional stresses
(structural, thermal and mechanical ones) consists not only in their mechanical
effect, but also in the formation due to their effect of accumulated dislocation
groups and stimulated conditions of ascending H_2 diffusion. There are 55 refer-
ences.

                                                        G. L.

[Abstracter's note: Complete translation]
Card 2/2

S/:37/62/000/005/121/150
A160/A101

AUTHORS: Kharchenko, V. A., Gurzhiyenko, K. F., Kondrashov, A. I., Akulinin, M. A.

TITLE: The effect of thermal treatment conditions of forge-heated forgings on the formation and coloring of flakes

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 5, 1962, 126, abstract 5I769 ("Tr. Donetsk. politekhn. in-ta", 1961, 56, 41 - 53)

TEXT: The investigation of the effect of the process of cooling forged pieces and of the subsequent tempering on the formation of flakes and their coloring was carried out with 34 XH3M (34KhN3M) steel composed of 0.35% C, 0.57% Mn, 0.26% Si, 0.90% Cr, 3.12% Ni, 0.31% Mo, 0.018% S, 0.020% P, and containing 6.0 cm^3 of H per 100 g during the teeming. The ingot, having a temperature of 700°C and delivered to the forge and press shop, was charged, within two hours, into the furnace with a temperature of 650°C for 6 hours. Then, it was charged into the soaking pit with a temperature of 950°C for 35 hours, and ultimately it was removed with 1,200°C for billeting. After this process, it was

Card 1/ 2

The effect of thermal treatment...

again charged into the furnace with 1,050°C for 17 hours and then taken out for forging. The forging was conducted at 1,200 - 950°C. After the forging, the samples were subjected to various stages of treatment: 1) they were cooled in the air, 2) cooled down to 100°C, and 3) quenched in oil. Immediately after the cooling, one part of the samples was tempered at 650°C for 5 hours; one part was tempered after aging at room temperature for two weeks; and one part remained untempered. The kinetics of the formation of flakes during the process of the hold time at room temperature for 2 to 15 days was investigated by the ultrasonic method. Investigated were also the macrostructure and the flakes with the help of a magnetic flaw detector after an aging process of 1 month. It was revealed that the quantity and the zone of the location of flakes increase in case the cooling rate is increased. The dimensions of the flakes, however, decrease if the cooling rate is raised. An immediate high tempering prevents the formation of flakes. The aging of samples in the air up to the tempering for two weeks, contributes to increase the amount and sizes of flakes. A bright silverish coloring of the flakes in their cross-sectional view is obtained only in the samples subjected to high tempering, as a result of an increase in the plasticity and toughness of the metal. There are 8 references.
[Abstracter's note: Complete translation]   A. Babayeva

Card 2/2

/P. 1151

AUTHORS: Kharchenko, V. A., Gurzhiyenko, K. F., Kondrashov, A. I.

TITLE: Temper brittleness of grade 34 XH3M (34KhNZM) chrome-nickel-
            molybdenum steel in isothermal annealing

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 5, 1962, 22, abstract 5I129
            ("Tr. Donetsk. politekhn. in-ta". 1961, v. 56, 115-123)

TEXT: The authors studied the effect of cooling conditions after isothermal
annealing at 650°C with and without intermediate recrystallization, upon the
mechanical properties of forged 34KhNZM steel (C 0.35, Cr 0.9, Ni 3.12, Mo 0.31%).
After forging in a range of 1,200 - 950°C three samples of 120 x 120 mm section
and 200 mm length were placed in a furnace with 350°C temperature and subjected
to isothermal holding at 350°C for 3 hours and at 650°C for 6 hours, with cooling
in oil. in air and with the furnace. Three other samples were cooled after
forging to 200°C and were then subjected to an analogous treatment as the first
samples; the third group of samples was, after forging, cooled down to 350°C,
held for 3 hours, and was then subjected to double heating up to 850°C with
cooling after each heating down to 200°C, and then held at 650°C for 3 hours.

Card 1/2

Cooling was performed as mentioned above. No flakes were found in all samples
after heat treatment. Mechanical tests showed that 6_i, 6_s and H_B of the samples,
cooled after forging to 200°C were lower than after cooling to 350°C; δ, ψ and
a_k are higher in case 1, than in case 2. In annealing under conditions which
include recrystallization at 850°C, 6_i, 6_s and H_B of the samples cooled after
forging to 350 and 200°C are practically equal and do not depend on the rate of
final cooling. In cooling after forging to 350 and 200°C and subsequent iso-
thermal annealing at 650°C, a decrease in a_k is observed in slow cooling from
650°C. Higher values of δ, ψ and a_k in cooling after forging to 200°C as
compared to cooling down to 350°C, are explained by the preservation at 350°C
of large sections of residual austenite. which are not decomposed during subse-
quent holding at 650°C, and during cooling are transformed into martensite. In
the case of annealing with double recrystallization and cooling with the furnace,
a decrease in a_k is observed. This is connected with the texture of secondary
grains inside the initial grain, obtained during heating at 850°C and cooling
from this temperature.

[Abstracter's note: Complete translation]   H. Shapiro

Card 2/2

S/148/62/000/008/003/009
E111/E435

AUTHORS: Braynin, I.Ye., Kharchenko, V.A., Ivanov, F.I.

TITLE: Kinetics of the decomposition of supercooled
              austenite in chromium-nickel-molybdenum steel in
              two-stage isothermal cooling

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya
              metallurgiya, no.8, 1962, 100-107

TEXT: The kinetics of decomposition of supercooled austenite
during two-stage isothermal cooling in relation to the
temperature of the first stage was investigated for the steels
type 34XH3M (34KhNZM) and 35XHM(35KhNM), which have the
following composition

		C	Mn	Si	Cr	Ni	Mo	P	S
1	34XH3M	0,37	0,73	0,25	0,98	2,90	0,34	0,016	0,018
2	34XH3M	0,32	0,63	0,27	0,83	2,90	0,30	0,025	0,025
3	35XHM	0,36	0,62	0,21	0,99	1,36	0,24	0,023	0,022

After austenizing at 850 and 1200°C, a part of the specimens
Card 1/2

S/148/62/000/008/003/009
Kinetics of the decomposition ...   E111/E435

was subjected to single-stage cooling with different isothermal
holding, a second part was cooled by the two-stage method with
stage I holding at 350, 300, 250 and 200°C (as in the single-
stage treatment) and stage II holding at 650°C.   After all heat
treatments, the specimens were water quenched and the quantity of
untransformed austenite was determined by the martensite content
in the final structure.   Microstructure, hardness and micro-
hardness were investigated and magnetic measurements were made.
Conclusion: to accelerate decomposition of supercooled
austenite in two-stage isothermal cooling of chromium-nickel-
molybdenum steels, in stage I to 200 – 250°C (somewhat below
the temperature of the start of the martensite transformation)
cooling should be quicker.   As a result of this, decomposition of
untransformed austenite during heating to the stage II
temperature and subsequent holding at 650°C is accelerated.
In a number of cases, for instance in large forgings, this permits
preventing flake formation.   There are 2 figures and 3 tables.

ASSOCIATION: Donetskiy politekhnicheskiy institut (Donets
                                    Polytechnical Institute)
SUBMITTED: June 17, 1961
Card 2/2

BRAYNIN, I.Ye.; KHARCHENKO, V.A.; IVANOV, F.I.

Kinetics of the decomposition of undercooled austenite in
chromium-nickel-molybdenum steel during two-stage isothermal
cooling. Izv. vys. ucheb. zav.; chern. met. 5 no.8:100-107
'62.   (MIRA 15:9)

1. Donetskiy politekhnicheskiy institut.
        (Chromium-nickel steel—Metallography)
            (Phase rule and equilibrium)

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a... , ... 'Engineer'

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* modified with mianmeta

BOBYLEV, A.P., dotsent; KHARCHENKO, V.A., aspirant

Studies on the influence of industrial and technological factors on the breaking off of coal in stopes during plowing operations. Ugol' 40 no.9:21-22 S '65.   (MIRA 18:10)

1. Moskovskiy institut radioelektroniki i gornoy elektromekhaniki.

KHARCHENKO, V.F., inzh.; GORDEYEV, V.K., inzh.; SYSOYEV, T.I., inzh.; KHIGER, M.G., inzh.

Erection of heavy towers for electric transmission lines in close quarters. Mont. i spets. rab. v stroi. 24 no.2:9-10 F '62.   (MIRA 15:6)

1. Rostovskiy Gosudarstvennyy institut po proyektirovaniyu, issledovaniyu i ispytaniyu stal'nykh konstruktsiy i mostov i trest Yuzhstal'konstruktsiya.
(Electric lines--Poles and towers)

24.6600

AUTHOR: Kharchenko, V.F.

TITLE: Polarization of nuclei during fission reactions

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 5, no. 2, 1960,
            272-273

TEXT: The scattering of protons and deuterons in the field of the
nucleus, in (d,p) fission reactions, apparently leads to proton
polarization.   Thereby, the terminal nuclei also remain polarized.
The density matrix of the final state of the system in such reac-
tions is given by G. Vysotskiy and A. Sitenko (Ref. 2: ZhETF, 36,
1143, 1959). From this matrix, the density matrix for the terminal
nucleus is found

$$\rho'_{\mu_j \mu'_j} = \sum_{\mu_p} \rho'_{\mu_p \mu_j ; \mu_p \mu'_j} \qquad (1)$$

The polarization of the terminal nucleus is determined by the nor-
malized expansion coefficients of (1) in terms of the spin tensors.

Card 1/3

25579
S/185/60/005/002/016/022
D274/D304

Polarization of nuclei...

The expression thus obtained leads to the general formula for the polarization of terminal nuclei for slow polarization of incident deuterons and initial nuclei. If the initial nuclei and deuterons are not polarized, the obtained formula is simplified. In the case of jj-coupling, the polarization is given by

$$P = \sqrt{j(j+1)(2j+1)} \sum_{l j_n j_n'} (-1)^{i-j-\frac{1}{2}+l} \sqrt{\gamma l_{j_n} \gamma l_{j_n'}} \times$$

$$\times (2j_n+1)^{\frac{1}{2}}(2j_n'+1)^{\frac{1}{2}}(2l+1)^{-\frac{1}{2}} w(l j_n' l j_n; \frac{1}{2}1) \times$$

$$\times w(j j_n' j j_n; i_1) \sum_m \frac{m}{\sqrt{l(l+1)}} |I_l^m|^0 \left| \sum_{l j_n m} \frac{\gamma l_{j_n}}{2l+1} \right| I_l^m |^2. \quad (6)$$

In the approximation of plane waves different from zero, there exist components of the spin tensor for which another formula for polarization holds. The polarization of terminal nuclei in fission reactions can be recognized by the angular distribution of γ-quanta if the formed nuclei are in the excited state, and by the angular

Card 2/3

SITENKO, A.G. [Sytenko, O.H.]; KHARCHENKO, V.F.

Possibility of measuring the polarization arising in the scattering
of a neutron by a neutron. Ukr. fiz. zhur. 6 no.1:20-24
Ja-F '61.   (MIRA 14:6)

1. Fiziko-tekhnicheskiy institut AN USSR i Khar'kovskiy
gosudarstvennyy universitet im. A.M. Gor'kogo.
            (Neutrons—Scattering)
            (Polarization (Electricity))

38839
S/185/62/007/006/001/014
D407/D301

24 1500

AUTHOR: Kharchenko, V. F.

TITLE: On nucleon scattering by the bound state of two other
             nucleons

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 7, no. 6, 1962,
             573-580

TEXT: Neutron scattering by deuterons is considered, allowance
being made for spins and isotopic spins in the case of central for-
ces. As an example, the case in which the interaction between nu-
cleons is described by a non-local Yamaguchi potential, is consi-
dered. The analysis is based on L. D. Faddeyev's wave equation
(Ref. 4: ZhETF, 39, 1459, 1960). In accordance with Ref. 4 (op.
cit.) in the case of a system of 3 identical particles, the com-
plete wave function which describes the scattering of a particle
by the bound state of the other two particles is expressed in mo-
mentum space by:

Card 1/3

S/185/62/007/006/001/014
D407/D301

On nucleon scattering ...

$$\psi = \psi_1(k_{23}, p_1) + \psi_2(k_{31}, p_2) + \psi_3(k_{12}, p_3) \qquad (1)$$

where the functions ψ_1, ψ_2 and ψ_3 depend on the momenta, spin va-
riables and isotopic-spin variables. These functions are connected
by an integral equation. The scattering of neutrons by deuterons
is described by two wave functions ψ_{ST} (S and T denoting the total
spin and isotopic spin, respectively). These functions are con-
structed by means of symmetry operators which are linear combina-
tions of the commutation operators of the momenta. For the bound
state S = 1/2, T = 1/2 (tritium), one obtains a system of 4 homo-
geneous integral equations. In the case of an interaction, descri-
bed by a Yamaguchi potential (Ref. 6: Phys. Rev., 95, 1628, 1954),
the system of integral equations for the wave functions reduces to
two (if S = 3/2). In the case of zero-energy of incident neutrons,
the integral equations obtained can be reduced to a one-dimension-

Card 2/3

/4 4460 ,

AUTHOR: Kharchenko, V. F.

TITLE: On the bound state of three nucleons

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 7, no. 6, 1962,
            582-591

TEXT: The bound state of a 3-nucleon system is considered, the
interaction being described by a non-local Yamaguchi potential. The
binding energy is calculated, and the wave function of the system
is determined. The use of a non-local potential permits reducing
the solution of the problem to that of a one-dimensional integral
equation. Such a potential makes allowance for the finite range
of the nuclear forces. It is assumed that the wave function ψ^s is
symmetrical with respect to any particle-pair:

$$\psi^s = \psi(k_{23}, p_1) + \psi(k_{31}, p_2) + \psi(k_{12}, p_3) \tag{1}$$

Card 1/ 4

On the bound state ...

S/185/62/007/006/002/014
D407/D301

$$a(p) = \frac{\pi^2 \lambda}{\beta\left(\beta + \sqrt{\frac{3}{4}\, p^2 + K^2}\right)^2}\, a(p) + 4\pi\lambda \int_0^\infty I(p, p'; K)a(p')p'^2 dp' \tag{15}$$

(where I is given by an expression). In order to solve Eq. (15)
and to determine the binding energy, the author uses the itera-
tion method proposed by L. Eyges (Ref. 6: Phys. Rev., 121, 1744,
1961). Five successive iterations of Eq. (15) are calculated nu-
merically. The convergence of the iteration process is satisfac-
tory. It was found that the ratio of the binding energy of the 3
particles to that of the deuteron equals 13.39. Further, the ground
state of the tritium (H^3)-nucleus is considered. L. D. Fadeyev's

Card 3/4

S/185/62/007/006/002/014
D407/D301

On the bound state ...

equation (Ref. 10: ZhETF, 39, 1459, 1960) for the bound state of
3 particles is used. Thereby one obtains a system of 2 one-dimen-
sional integral equations. This system is also solved by the ite-
ration method. The calculations yielded a value of 9.48 Mev for the
binding energy of tritium (the corresponding experimental value
being 8.48 Mev); it is noted that tensor forces were neglected in
the calculations (these forces lead to a decrease in the binding
energy). There are 3 figures.

ASSOCIATION: Kharkivs'kyy derzhuniversytet (Kharkiv State Univer-
               sity)

SUBMITTED: January 24, 1962

Card 4/4

S/185/62/007/011/001/019
D234/D308

AUTHORS: Sytenko, O.H. and Kharchenko, V.F.

TITLE: Polarization phenomena in direct nuclear reactions, taking the spin-orbital interaction into account

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 7, no. 11, 1962, 1149-1158

TEXT: The authors deduce several expressions for the angular distribution and polarization of the products of stripping (d,p) and capture (p,d) reactions. In the first case, if the deuterons are not polarized,

$$\left(\frac{d\sigma}{d\Omega}\right)_i = \left(\frac{d\sigma}{d\Omega}\right)_o \left\{ 1 + 3\, \frac{i}{i+1}\; \frac{j(j+1) - i(i+1) - \frac{3}{4}}{j(j+1) - i(i+1) + \frac{3}{4}}\, P_i P_j \right\}, \quad j \neq 0, \qquad (17)$$

where P_i is the polarization vector of the initial nucleus and P_j that of the final nucleus. It is desirable to check this equation

Card 1/2

Polarization phenomena ...   S/185/62/007/011/001/019
D234/D308

experimentally. In the second case, if the protons are not polariz-
ed, i and j in (17) are interchanged. The most important English
language references reads as follows: D. Robson, Nucl. Phys., v. 22,
34, 1961; v. 22, 47, 1961.

ASSOCIATION: Kharkivs'kiy derzhuniversytet (Kharkov State Univ-
                ersity)

SUBMITTED: April 12, 1962

Card 2/2

S/185/63/008/001/002/024
D234/D308

AUTHOR: Kharchenko, V. F.

TITLE: Polarization of nuclei in direct nuclear reactions,
               taking into account the spin-orbit interaction

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 8, no. 1, 1963,
               11-16

TEXT: For reactions with angular momentum transfer, in which both
the incident particles and the initial nuclei are polarized, the
author derives expressions for C (IMLQ; RTNK) with and without
taking the spin-orbit interaction into account. Several special
cases are discussed, e.g. only if the vector polarization is dif-
ferent from 0 and the spin of the final nucleus $j \neq 0$, then

$$\left(\frac{d\sigma}{d\Omega}\right)_1 = \left(\frac{d\sigma}{d\Omega}\right)_0 \left[1 + 3\frac{i}{i+1} \frac{j(j+1) - i(i+1) - s(s+1)}{j(j+1) - i(i+1) 3 s)s+1)} P_i P_j\right] \qquad (12)$$

Card 1/2

Polarization of nuclei ...   S/185/63/008/001/002/024
D234/D308

where P_i is the polarization of the initial nuclei and P_j that of the final nuclei. For inverse reactions

$$\bar{C}(RTNK;\ IMLQ) = \left(\frac{M_1}{M_2}\right)^2 (-1)^{I+L+R+N}\ C^*(IMLQ;\ RTNK) \qquad (13)$$

ASSOCIATION: Kharkivs'kyy derzhuniversytet im. O. M. Hor'koho
(Kharkiv State University im. O, M. Gor'kiy)

SUBMITTED: July 27, 1962

Card 2/2

AP4010288

AUTHOR: Sitenko, A.G.; Kharchenko, V.F.

TITLE: Bound state of three nucleons and scattering of a nucleon by two others in a bound state /Report, Thirteenth Annual Conference on Nuclear Spectroscopy held in Kiev, 25 Jan to 2 Feb 1963/

SOURCE: AN SSSR, Izvestiya, Seriya fizicheskaya, v.28, no.1, 1964, 41-45

TOPIC TAGS: three-nucleon motion, nucleon scattering, Yamaguchi potential, nucleon-nucleon scattering, bound nucleon states, scattering length

ABSTRACT: Investigation of the problem of motion of three nucleons can yield additional information on the interaction between nucleons. In contrast to the problem of two-nucleon motion in the range of low energies, the problem of the motion of three nucleons proves to be more sensitive to the form of the two-particle potential. Hence the question of selecting the interaction potential to be used for the calculations is very important. In the present study there is considered the problem of the motion of three nucleons on the assumption that the interaction between them is described by a nonlocal potential with separable variables (Y.Yamaguchi, Phys.Rev., 95, 1628, 1954). The problem of the motion of two nucleons can be solved precisely

Card 1/2

AP4010288

in using this type of nonlocal potential. In the case of the problem of three nucl-
eons this potential leads to a system of two integral equations for the total spin
$S = 1/2$ and one integral equation for $S = 3/2$. On the basis of the general equa-
tions there are considered the particular cases of the tritium nucleus and elastic
scattering of a slow neutron by a deuteron. For the latter case there are written
the expressions for the amplitudes of elastic scattering of the neutron by the deu-
teron in the doublet and quartet states. The results of the calculations of the
scattering length are compared with experimental data. The agreement is good for
the quartet case, but poor for the doublet case. Orig.art.has: 26 formulas and 3
figures.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet (Khar'kov State University);
Institute fiziki Akademii nauk SSSR (Institute of Physics, Academy of Sciences,SSSR)

SUBMITTED: 00   DATE ACQ: 10Feb64   ENCL: 00

SUB CODE: NS   NR REF SOV: 008   OTHER: 006

Card 2/2

SITENKO, A.G.; KHARCHENKO, V.F.

The doublet length of neutron-deuteron scattering and the
three-nucleon bound state allowing for tensor forces. IAd.
fiz. 1 no.6:994-1001 Je '65.   (MIRA 18:6)

1. Institut fiziki AN UkrSSR.

SITENKO, A.G. [Sytenko, O.H.]; KHARCHENKO, V.F.

Problem of the motion of three nucleons taking tensor forces
into account. Ukr. fiz. zhur. 10 no.5:469-480 My '65.
(MIRA 18:5)

1. Institut fiziki AN UkrSSR, Kiyev.

L 2843-66   EWT(m)/T/EWA(m)-2

ACCESSION NR: AP5024124   UR/0185/65/010/009/0938/0951

AUTHOR: L'ovshyn, E. B.(Levshin, Ye. B.); Kharchenko, V. F.

TITLE: Optic model for deuterons, taking into account the tensor spin-orbit interaction

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 9, 1965, 938-951

TOPIC TAGS: deuteron scattering, deuteron interaction, nucleon interaction, optic model, elastic scattering, scattering cross section, deuteron beam

ABSTRACT: The optic model is useful for the description of nucleon-interactions in a wide range of energies. The model has been used earlier for the description of elastic scattering of compound particles (deuterons, He^3 nuclei, α-particles, etc.) on nuclei. The present paper gives the derivation of formulas for the analysis of elastic deuteron scattering based on the optic model taking into account all possible types of spin-orbit interaction and the existence of nondiagonal matrix elements of the optic potential. The experimentally measured quantities (such as the differential cross section, polarization components, and the total reaction cross sections) are all expressed in terms of partial phase shifts. The incident deuteron beam is assumed polarized in an arbitrary manner. "The
Card 1/2

L 2843-66

ACCESSION NR: AP5024124   6

authors are greatly indebted to O. G. Sitenko for valuable remarks and useful
discussion." Orig. art. has: 59 formulas.

ASSOCIATION: Instytut fizyky AN URSR, Kiev (Physics Institute, AN Ukr SSR)

SUBMITTED: 30Sep64   ENCL: 00   SUB CODE: NP, OP

NO REF SOV: 001   OTHER: 014

Card 2/2

L 23014-66   EWT(m)/T
ACC NR: AP6014825   SOURCE CODE: UR/0367/65/001/006/0994/1001

AUTHOR: Sitenko, A. G.; Kharchenko, V. F.   28

ORG: Institute of Physics, AN UkrSSR (Institut fiziki AN UkrSSR)   B

TITLE: Neutron-deutron doublet scattering length and the three-nucleon bound state
taking tensor forces into account

SOURCE: Yadernaya fizika, v. 1, no. 6, 1965, 994-1001

TOPIC TAGS: nucleon, neutron scattering, neutron, deuteron, integral equation

ABSTRACT: The motion of three nucleons is considered, the inter-
action between which is described by the Yamaguchi potential,
taking tensor forces into account. The problem of three nucleons
in the bound state and the scattering of a zero-energy neutron on
a deuteron are reduced to the solution of a system of one-dimen-
sional integral equations. The doublet neutron-deuteron scat-
tering length, binding energy, and wave function of three nucleons
in the bound state are determined from a numerical solution of
the integral equations. Orig. art. has: 2 figures and 18 formulas. [Based on
authors' Eng. abst.] [JPRS]

SUB CODE: 20 / SUBM DATE: 17Aug64 / ORIG REF: 010 / OTH REF: 007

Card 1/1   2

L 28014-66   EWT(m)/T

ACC NR: AP6018163

SOURCE CODE: UR/0185/65/010/005/0469/0480

AUTHOR: Sytenko, O. G.; Kharchenko, V. F.

ORG: Institute of Physics, AN UkrSSR (Instytut fizyky AN UkrSSR)

TITLE: Problem of the motion of three nucleons allowing for tensor forces

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 5, 1965, 469-480

TOPIC TAGS: nucleon, neutron scattering, deuteron, integral equation, nuclear binding energy, wave function

ABSTRACT: The authors consider the problem of the motion of three nucleons, the interaction between which is described by Yamaguchi's potential with tensor forces taken into account. The problem of the bound state of the three nucleons and the problem of the scattering of a zero-energy neutron by a deuteron are reduced to the solution of systems of one-dimensional integral equations. As a result of the numerical solution of the integral equations it is possible to determine the doublet length of the scattering of a neutron by a deuteron, the binding energy, and the wave function of the three nucleons in the bound state. Orig. art. has: 22 formulas, 2 figures. [JPRS]

SUB CODE: 20 / SUBM DATE: 18Jun64 / ORIG REF: 004 / OTH REF: 006

Card 1/1

ACC NR: AP6019627   (A, N)   SOURCE CODE: UR/0048/66/030/002/0328/0330

AUTHOR: Sitenko, A.G.; Kharchenko,V.F.

ORG: Institute of Physics of the Academy of Sciences of the UkrSSR (Institut fiziki Akademii nauk UkrSSR)

TITLE: Taking tensor forces into account in the three-nucleon problem /Report, Fifteenth Annual Conference on Nuclear Spectroscopy and Nuclear Structure, held at Minsk, 25 January to 2 February 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 2, 1966, 328-330

TOPIC TAGS: nuclear structure, nuclear force, nucleon interaction, three body problem, tritium

ABSTRACT: The authors (Izv. AN SSSR. Ser. fiz., 28, 41 (1964); Nucl. Phys., 49, 15 1963)) have previously treated the three-nucleon problem with the assumption of non-local central two-body forces. In the present paper they extend their previous calculations with the aid of the potential of Yoshio Yamaguchi and Yoriko Yamaguchi (Phys.Rev. 95, 1635 (1954)) to take tensor forces into account. The calculation of the zero-momentum neutron-deuteron scattering length and the triton binding energy is reduced in the case of tensor forces, as previously in the case of central forces, to the solution of a set of linear integral equations. The integral equations were solves numerically with the aid of a computer, using values of the parameters in the

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KHARCHENKO, V. G.

AID P - 2461

Subject   : USSR/Medicine

Card 1/1   Pub. 37 - 8/18

Authors   : Rusin, N. M., Kand. of Biol. Sci., Vasil'yeva, O. I.,
               Kharchenko, V. G., Scientific Workers

Title   : Hygienic evaluation of agricultural food products
              processed with "Karbofos I"

Periodical : Gig. i san., 6, 38-44, J. 1955

Abstract   : Discusses the toxicity and changes in taste and smell of
              vegetable foodstuffs protected against vermin with
              the Soviet insecticide, ("Karbofos I") a dark brown liquid
              with unpleasant smell (the formula of this chemical com-
              pound is given in the article). The authors present their
              method of determining, the "Karbofos" content of products.
              Tests with animals and testing of products are described.
              From the hygienic point of view, there are no objections
              against the use of this insecticide in moderate doses.
              5 tables.

Institution: Scientific Research Institute of Sanitation im. Erisman.
Submitted : Feb. 23, 1955
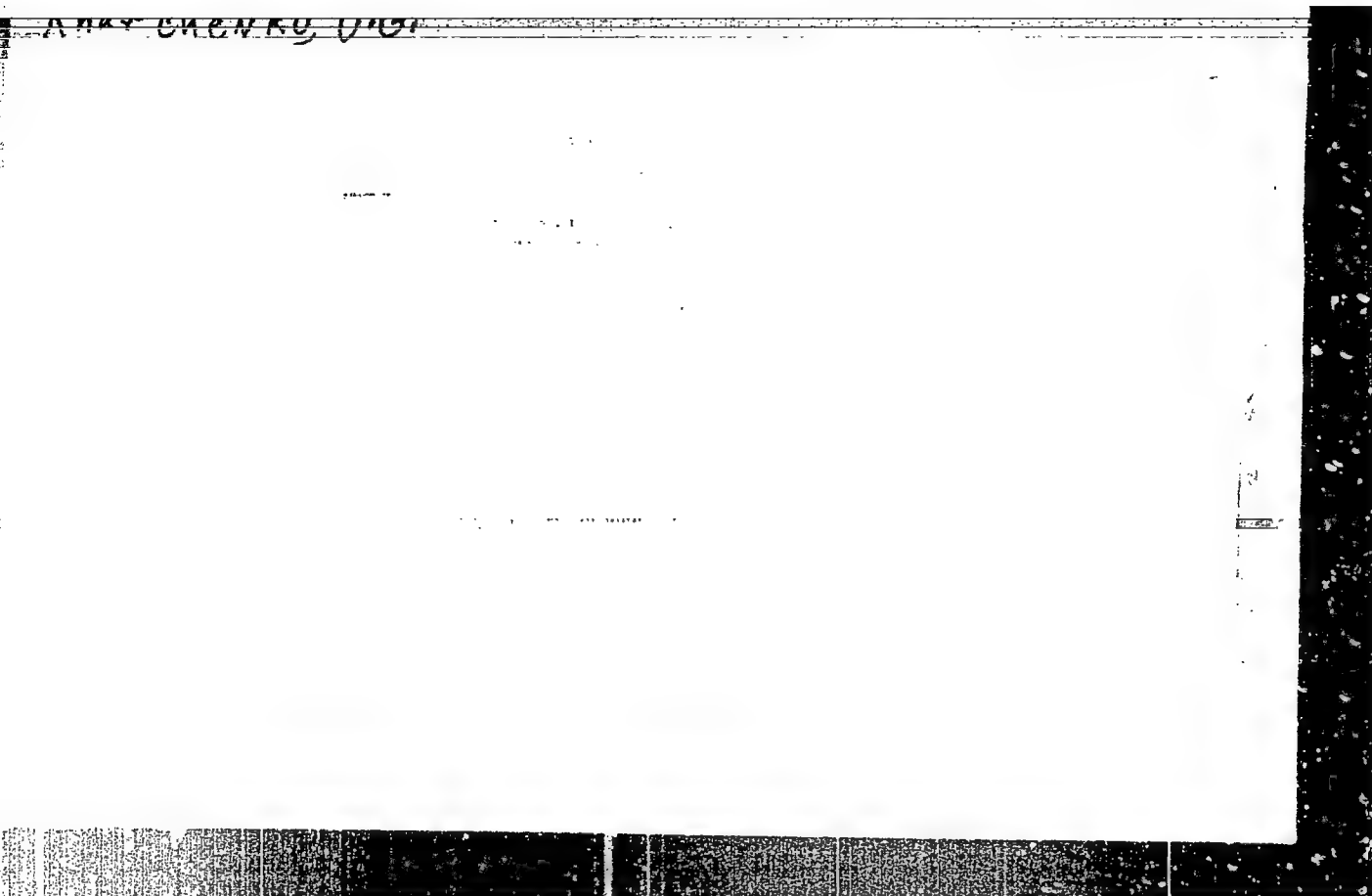
5(3)
AUTHORS: Tilichenko, M. N., Kharchenko, V. G.   SOV/79-29-6-29/72

TITLE: Condensation of Aldehydes and Ketones (Kondensatsiya al'degidov
              i ketonov). III. Diketone Condensation of Cyclohexanone With
              Benzaldehyde, a New Way of Condensation of Alicyclic Ketones
              With Aromatic Aldehydes (III. Diketonnaya kondensatsiya tsiklo-
              geksanona s benzal'degidom (novyy vid uplotneniya alitsikliches-
              kikh ketonov s aromaticheskimi al'degidami))

ABSTRACT: The authors had already previously found (Ref 1) that the mono-
              arylidene-cyclanones are easily dimerized in alcoholic-alkaline
              media, and that the diarylidene-cyclanones add with the same
              readiness a molecule of cyclohexanone. Both reactions represent
              a condensation according to Michael   (Scheme 1). Considering
              this fact it was not clear to the authors that in many papers
              (Refs 2-6) dealing with the condensation of the cyclanones with
              aromatic aldehydes only products of the aldol-croton condensa-
              tion were described and that nobody observed the formation of
Card 1/3   the 1,5-diketones (I). The reason for this fact having been

Condensation of Aldehydes and Ketones. III. Diketone   SOV/79-29-6-29/72
Condensation of Cyclohexanone With Benzaldehyde, a New Way of Condensation
of Alicyclic Ketones With Aromatic Aldehydes

overlooked was, according to their opinion, that the aldol-
croton condensation of the alicyclic ketones of the cyclohexanone
type with benzaldehyde and other similar aldehydes, which
usually takes place in alkaline-aqueous media, proceeds ex-
tremely readily, in which connection the products escape reaction
owing to their small solubility in the media mentioned. The
products of the aldol-croton condensation thus incidentally
proved merely to be end products of the reaction. On the basis
of this assumption, deriving from cyclohexanone and benzalde-
hyde, the condensation was carried out in a way that the mono-
and dibenzal-cyclohexanones remained in the solution when being
formed. In this way white crystals of compound (I) (Ar=C_6H_5)

recrystallize from the reaction solvent after storing for
2-3 days, according to the concentration of the alkali liquor.
The diketone condensation (Ref 7) was thus shown to apply also
to the condensation range of the alicyclic ketones with aromatic
aldehydes. In the reaction products in addition to the diketone
(I) also the nonanonol (II) was found (Scheme 2). From this
it may be concluded that the reaction mixture contains only

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Condensation of Aldehydes and Ketones. III. Diketone SOV/79-29-6-29/72
Condensation of Cyclohexanone With Benzaldehyde, a New Way of Condensation
of Alicyclic Ketones With Aromatic Aldehydes

a small quantity of monobenzal-cyclohexanone and that the forma-
tion of 1,5-diketone (I) takes place mainly according to the
Michael condensation of cyclohexanone with the resultant inter-
mediates. There are 8 references, 4 of which are Soviet.

ASSOCIATION: Saratovskiy gosudarstvennyy universitet (Saratov State Univer-
sity)

SUBMITTED: June 1, 1958

Card 3/3

AUTHORS: Tilichenko, M. N., Kharchenko, V. G.   SOV/79-29-6-30/72

TITLE: Condensation of Aldehydes and Ketones (Kondensatsiya al'degidov
             i ketonov). IV. The Phenomenon of Furfurolysis in the Alkaline
             Condensation of Ketols and of 1,5-Diketone with Furfurole (IV.
             Yavleniye furfuroliza pri shchelochnoy kondensatsii ketolov i
             1,5-diketona s furfurolom)

ABSTRACT: The authors previously observed (Refs 1,2) the interesting
             phenomenon that the compounds (I), (II), and (III) are rather
             readily transformed by furfurole to yield difural-cyclohexanone
             (IV) according to scheme 1. This splitting-up can be regarded
             as a furfurolysis, since the above compounds are not transformed
             under the same conditions without the addition of furfurole.
             It is of interest that such a splitting-up does not take place
             under the influence of benzaldehyde. The chemism of this process
             can be considered a combination of two main reactions: hydro-
             lysis and condensation of the hydrolysis products with furfurole
             (Scheme 2(a,b)). Cyclohexanone and fural cyclohexanone, the
Card 1/2   products of reaction (b) are condensed with furfurole thus

Condensation of Aldehydes and Ketones. IV. The   SOV/79-29-6-30/72
Phenomenon of Furfurolysis in the Alkaline Condensation of Ketols and of
1,5-Diketone With Furfurole

yielding difural cyclohexanone. The alkaline cleavage of the
cyclic β-ketols (cyclohexanoles) into the 1,5-diketones was
observed by W.Dieckmann and K.Fischer (Ref 4) and also by N. S.
Berbulesku (Ref 5). This reaction seems to be opposite to the
intramolecular aldol condensation which is in principle in the
same way reversible as the intermolecular aldol condensation
(Refs 6,7,9). Scheme 2(a,b) explains this furfurolysis as a
process in which the furfurole binds the hydrolysis products
(I),(II), and (III) with formation of the stable difural cyclo-
hexanone (IV) sparingly soluble in alcoholic medium. Thus the
equilibrium in the system is shifted towards the latter compound.
In these processes the problem remains to be solved why no ana-
logous splitting-up takes place under the action of benzaldehyde.
There are 7 references, 4 of which are Soviet.

ASSOCIATION: Saratovskiy gosudarstvennyy universitet (Saratov State Univer-
             sity)

SUBMITTED: June 2, 1958

Card 2/2

5 (3)
AUTHORS: Tilichenko, M. N., Kharchenko, V. G.   SO7/79-29-7-59/83

TITLE: Condensation of Aldehydes and Ketones (Kondensatsiya al'degidov
              i ketonov). V. Synthesis of 9-Phenyl-perhydroacridine by the
              Action of Formamide Upon Phenyltricyclohexanolone (V. Sintez
              9-fenil-pergidroakridina deystviyem formamida na feniltri-
              tsiklogeksanolon)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr.7, pp 2370-2372
              (USSR)

ABSTRACT: M. N. Tilichenko and V. I. Vysotskiy described the reaction of
              formamide with tricyclohexanolone (I) (Ref 1), which is the
              simplest representative of the carbonyl bridge ketols. The au-
              thors obtained these ketols by the diketone-condensation of
              cyclohexanone with aldehydes (Refs 2-4). The ketol (I) was
              isomerized previously to give the 1,5-diketone (III) by heating
              with formamide, which then reacted with formamide yielding per-
              hydro-(V)- and symmetric octahydro-acridine (VII). Phenyltri-
              cyclohexanolone was easily prepared by the condensation of
              cyclohexanone with benzaldehyde (Ref 3) or monobenzalcyclo-
              hexane (Ref 3). It reacted similarly on heating with formamide
Card 1/2   and gave 9-phenylperhydroacridine(VI)and not the expected oxy-

Condensation of Aldehydes and Ketones. V. Synthesis   SOV/79-29-7-59/83
of 9-Phenyl-perhydroacridine by the Action of
Formamide Upon Phenyltricyclohexanolone

amine (VIII). Strangely enough the formation of the correspond-
ing octahydroacridine, as was the case with the ketal, did not
take place. The question as to whether this was due to the in-
fluence of the C_6H_5-group, or to a slight difference in the
reaction conditions must still be investigated. The structure
of 9-phenylperhydroacridine was verified by dehydrogenolysis
over Pd/C to 9-phenylacridine. Although the reaction required
a high temperature (320^0), it proceeded smoothly and so quanti-
tatively as to be conclusive for identification of the hydro-
acridine (6.6 Mol H of the theoretical 7 Mol hydrogen were
separated). There are 7 references, 6 of which are Soviet.

ASSOCIATION: Saratovskiy gosudarstvennyy universitet (Saratov State Univer-
sity)

SUBMITTED: June 26, 1958

Card 2/2

TILICHENKO, M.N.; KHARCHENKO, V.G.

Condensation of aldehydes and ketones. Part 6: Conversion of phenyl- and furyltricyclohexanolones into 9-phenyl- and furylhydroacridines. Zhur.ob.khim. 30 no.7:2283-2285 Jl '60.   (MIRA 13:7)

1. Saratovskiy gosudarstvennyy universitet.
        (Tricyclohexanone) (Acridine)

TILICHENKO, M.N.; KHARCHENKO, V.G.

Condensation of aldehydes and ketones. Part 10: Diketone
condensation of β-acetonaphthalene with aldehydes. Zhur.ob.khim.
32 no.4:1192-1194 Ap '62.   (MIRA 15:4)

1. Dal'nevostochnyy gosudarstvennyy universitet, g. Vladivostok,
i Saratovskiy gosudarstvennyy universitet imeni N.G.Chernyshevskogo.
                  (Naphthalene) (Aldehydes) (Ketones)

TILICHENKO, M.N.; KHARCHENKO, V.G.

Dimerization of α-arylidenecyclohexanones. Uch.zap. SGU
75:65-68 '62.   (MIRA 17:3)

KHARCHENKO, V.G.

Production of monobenzylidene- and monofurfurylidenecyclohexa-
nones. Uch.zap. SGU 75:71-72 '62.   (MIRA 17:3)

PIT'GA, I. [Pitha, J.]; TILICHENKO, M. N.; KHARCHENKO, V. G.

Condensation of aldehydes and ketones. Part 11: Configuration of 4-R-2,3-cyclohexanobicyclo [3,3,1]-nonan-2-ol-9-ones. Zhur. ob. Khim. 34 no.6·1936-1938 Je '64.   (MIRA 17:7)

1. Chekhoslovatskaya Akademiya nauk, Institut organicheskoy khimii i biokhimii, Dal'nevostochnyy gosudarstvennyy universitet i Sa...tovskiy gosudarstvennyy politekhnicheskiy institut.

TILICHENKO, M.N.; KHARCHENKO, V.G.; KRUPINA, T.I.

Condensation of aldehydes and ketones. Part 12: Conversion from benzylidenebenzaldicyclohexanone to 4-benzal-9-phenyloctahydro-acridine. Zhur. ob. khim. 34 no.8:2721-2722 Ag '64.

(MIRA 17:9)

1. Dal'nevostochnyy gosudarstvennyy universitet, g. Vladivostok, i Saratovskiy politekhnicheskiy institut.

RAZUVAYEV, G.A.; STEPOVIK, L.P.; PERVEYEV, F. Ya.; DEMIDOVA, V.M.;
    ALANIYA, V.P.; SOKOLOV, N.A.; KHARCHENKO, V.G.; KRUPINA, T.I.;
    KLIMENKO, S.K.; RASSUDOVA, A.A.; GORELIK, M.V.

Letters to the editors. Zhur. org. khim. 1 no. 12:2244-2246
D '65   (MIRA 19:1)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitete (for Razuvayev, Stepovik). 2. Le-
ningradskiy gosudarstvennyy universitet (for Perveyev, Demidova).
3. Moskovskiy institut neftekhimicheskoy i gazovoy promysh-
lennosti imeni Gubkina (for Alaniya, Sokolov). 4. Saratovskiy
politekhnicheskiy institut (for Kharchenko, Krupina, Klimenko,
Rassudova).

S/182/60/000/011/013/016
A161/A029

AUTHORS: Degtev, G.F., Kharchenko, V.I.

TITLE: Recuperative Forging Shop Chamber Furnace for Nonoxidizing
              Heating

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, 1960, No.11, pp.42-43

TEXT: The described furnace for heating stamping blanks has been
designed by the Dnepropetrovskiy inzhenerno-stroitel'nyy institut
(Dnepropetrovsk Construction Engineering Institute), Department of "Tech-
nology of Metals", for the Luganskiy zavod im. Parkhomenko (Luga Plant
im. Parkhomenko) where it is now in operation. The nonoxidizing atmos-
phere in the work chamber is produced by incomplete combustion of natural
gas mixed with 0.5 - 055% air. The furnace (Figure) has a work chamber
(1) and a top chamber (2) for burning up incompletely burned gas from the
work chamber reaching it through three ducts in the walls. From the top
chamber smoke gas goes into two radiation recuperators, i.e., first into
the air recuperator (4) and then into the gas recuperator (3). Air is
heated to 550°C and gas to 450°C. Both recuperators are made of X18H9T1
(Kh18N9T1) steel. After the gas recuperator the combustion products go

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S/182/60/000/011/013/016
A161/A029

Recuperative Forging Shop Chamber Furnace for Nonoxidizing Heating

into the stack having a temperature of 500°C   Trapping of outer air into
the work chamber is prevented by overpressure of 0.5 mm water column; the
pressure is controlled by the throttle gate (5) and an ejector in the
chimney. Gas is thoroughly mixed with air in the two two-duct burners.
The burner itself and the burner ducts in the furnace wall are 800 mm
long and this distance is sufficient for combustion before the combustion
products reach the work chamber. The air and gas supply is controlled by
diaphragms. Measuring instruments are placed on a special board; throttle
valves are provided for adjusting the air and gas ratio. The furnace
atmosphere is checked periodically by a ВТИ-2 (VTI-2) gas analyzer; the
temperature is measured by six thermocouples. Air is preheated to 450-
-500°C and gas to 370-420°C; the temperature in the work chamber is 1,300-
-1,400°C and in the top chamber 1,300-1,400°C. The work capacity of the
furnace is 250 kg/hour. Ventilation and a water shield with evaporation
cooling are provided at the work window for safety and convenience. The
furnace can be controlled manually without automatic means and can be

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S/182/60/000/011/013/016
A161/A029

Recuperative Forging Shop Chamber Furnace for Nonoxidizing Heating

automated. The work chamber temperature can be measured either with thermocouples or with a radiation pyrometer. The specific fuel consumption is about 50% lower than in chamber furnaces without recuperators. Heating without oxidation is possible to 600 - 1,250°C and the furnace is suitable for heating any steel for forging or stamping, as well as for heat treatment. There is 1 figure.
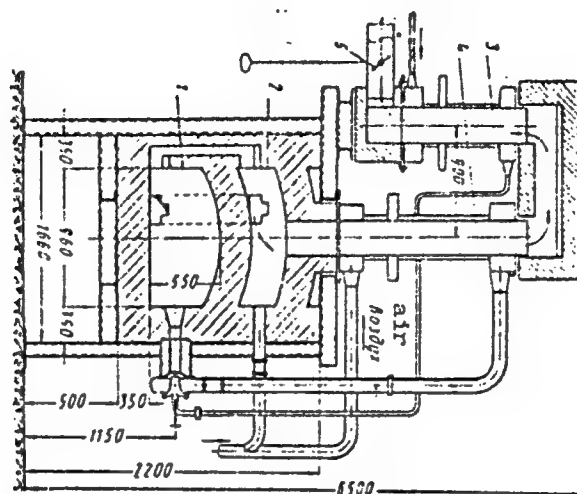
Card 3/4

S/182/60/000/011/013/016
A161/A029

Recuperative Forging Shop Chamber Furnace for Nonoxidizing Heating

Fig. 1

Card 4/4

DEGTEV, G.F.; KHARCHENKO, V.I.

Investigating radiation recuperators and two-conductor burners used in forge shops. Kuz.-shtam.proizv. 4 no.2:28-30 F '62.

(MIRA 15:2)

(Furnace, Heating)   (Heat regenerators)

DEGTEV, G. F., kand. tekhn. nauk; KHARCHENKO, V. I., inzh.

Melting bronze in a gas furnace with a recuperator. Mashino-
stroenie no.5:50-51 S-O '62. (MIRA 16:1)

1. Dnepropetrovskiy inzhenerno-stroitel'nyy institut.

(Bronze—Metallurgy)

KHARCHENKO, V. I., DEGTEV, G.F.

Gas furnace with controlled atmosphere for the melting of
nonferrous alloys. Lit.proizv. no.7:35-36 Jl '62.

(MIRA 16:2)

(Nonferrous metals—Founding)
(Metallurgical furnaces—Protective atmospheres)

DEGTEV, G.F.; KRIACHKNKO, V.I.; MOTVEYEV, D.R.

Mechanized continuous furnace with en annular hearth for the non-
scale heating of billets. Gaz. prom. 7 no.5:36-38 '62. (MIRA 17:11)

KHARCHENKO, V.I.; DL ZY, G.F.

        The gas furnace with adjustable atmosphere for the smelting of nonferrous metals. Ratstandlizatstiia no.12:21 '62.

DEGTER, G.F.; KHARCHENKO, V.I.

Nonoxidative heating of steel parts in electric furnaces. Gaz. prom. 8 no.6:22-23 '63.   (MIRA 17:8)

KHARCHENKO, V.I.; DEGTEV, G.F.

Double-pipe burners used in nonoxidative heating. Gaz. prom. 9
no.1:25-27 '64.   (MIRA 17:12)

DEGTEV, G.F.; KHARCHENKO, V.I.

Investigating certain controlled parameters of gas burners.
Gaz. prom. 10 no.1:39-44 '65.   (MIRA 18:1)

KHARCHENKO. V. I.

Wall creeper in the eastern Azov Sea region. Ornitologiia no.7:494-495 '65.

(MIRA 18:10)

KASICHENKO, V.I.; MILORADSKIY, V...

Take care of the flamingos. Priroda 51 no.12:76-78 D '62.
(MIRA 15:12)

1. Rostovskiy gosudarstvennyy universitet.

L 36144-66   EWP(e)/EWT(m)/T/EWP(t)/EWP(k)/ETI   IJP(c)   WH/JD/HW

ACC NR: AP6016315   (N)   SOURCE CODE: UR/0182/66/000/001/0036/0037

54

AUTHOR: Degtev, G. F., Matveyev, O. R., Kharchenko, V. I., Shevchenko, P. V.

ORG: none

TITLE: Heating of steel billets in molten glass

SOURCE: Kuznechno-shtampovochnoye proizvodstvo, no. 1, 1966,   36-37

TOPIC TAGS: glass, heat carrier, heat treat furnace, metal forging, METAL
OXIDATION, METAL HEAT TREATMENT

ABSTRACT: The authors refute the contention of I. I. Gushchina (Kuznechno-shtampo-
vochnoye proizvodstvo, no 4, 1965) and other investigators that heating in molten
glass can at present be an effective method of protecting steel against oxidation
during reheating prior to its forging and pressing. On the basis of experiments with
the heating of steel billets in molten window glass as well as in other types of
molten glass at 1000-1450°C for up to 5 hr it is shown that, along with its oxidation-
preventing qualities, glass displays major disadvantages such as considerable vis-
cosity and pronounced adhesion to the metal; this leads to a high consumption of
glass and causes difficulties during the subsequent cleaning of the metal. During
precision die-forging the remaining glass gets pressed into the surface layers and

Card 1/2   UDC: 542.41

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ACC NR: AP6016315

distorts the dimensions of the finished forging. Moreover, the high temperatures in
the working area (of the order of 1400°C) result in extremely unfavorable working
conditions for the furnace-tending personnel. All this gives reason to believe that,
contrary to the published recommendations, this technique of oxidation-free reheating
of steel is not practical at present.

SUB CODE: 13, 11/   SUBM DATE: none/   ORIG REF: 002/   OTH REF: 001

Card 2/2 *llb*